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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 12 September 2000 (12.09.00)	
International application No. PCT/GB00/00141	**Applicant's or agent's file reference** FP-08-1019
International filing date (day/month/year) 11 January 2000 (11.01.00)	**Priority date** (day/month/year) 11 January 1999 (11.01.99)
Applicant CRUTTENDEN, Michael, James et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

01 August 2000 (01.08.00)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO **34, chemin des Colombettes** **1211 Geneva 20, Switzerland**	Authorized officer Pascal Piriou
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)

GB0000141

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

3

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
FP-08-1019		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/00141	11/01/2000	11/01/1999
International Patent Classification (IPC) or national classification and IPC H01R13/633		
Applicant MBM TECHNOLOGY LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
01/08/2000	06.04.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Augustin, W Telephone No. +49 89 2399 2629

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00141

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

3-6	as originally filed			
1,1A	filed with the demand			
2	as received on	24/11/2000	with letter of	21/11/2000

Claims, No.:

1-6	filed with the demand			
7-11	as received on	24/11/2000	with letter of	21/11/2000

Drawings, sheets:

1/8-8/8	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   ☐ the language of publication of the international application (under Rule 48.3(b)).
   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.
   ☐ filed together with the international application in computer readable form.
   ☐ furnished subsequently to this Authority in written form.
   ☐ furnished subsequently to this Authority in computer readable form.
   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   ☐ The statement that the information recorded in computer readable form is identical to the written sequence

listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:
   ☐ the claims, Nos.:
   ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations
   see separate sheet

Re Item V

Prior art does not disclose nor suggest a snatch disconnection lanyard assembly according to claim 1 comprising a tensioner which may be set to allow paying out of the lanyard or set to pull in the lanyard and when set to pull in, will resist paying out.

Snatch Disconnection Lanyard

This invention relates to snatch connectors providing connection/disconnection of electrical or fluid circuits extending between two separable bodies. For example a snatch connector may be employed to connect a refrigeration unit or charging circuit on a road vehicle to a fixed (stationary) power supply, ensuring safe disconnection of the electrical power if the vehicle is inadvertently driven away without first manually disconnecting the circuit. Other applications for snatch connectors include:-

1) connecting ship to shore service lines
2) emergency disconnect packages, connectors and interfaces for ROV (remote operated vehicle) manipulation, used in subsea oil and gas production
3) electrical connections for loads dropped or ejected from aircraft or other moving vehicles.

It is necessary for these connectors to be positively and safely separated to avoid damage to the electrical/fluid circuit and its anchoring points on the separated bodies. This function is normally achieved by firmly securing a first half of the connector to a first one of the bodies and fitting the second half of the connector at the end of a flexible cable or conduit leading to the second body. A lanyard loop is then secured between a fixed strong-point on the second body and the connector second half, so that as the bodies separate, the lanyard is tensioned and releases a spring loaded coupling sleeve on the connector, thereby allowing the two halves to separate. The length of the lanyard loop is shorter than the cable or conduit, which is therefore not subjected to excessive strain as the connector halves are pulled apart.

In some applications, for example where the first body is a variable load releasable from an aircraft, the second connector half may have to co-operate with a variety of different first connector halves, in various different connected positions, for different loads. In such cases it can be difficult to fit the lanyard to ensure proper disconnection whatever the load. Depending upon the type of load it may prove necessary to change the length of the lanyard and the location of the strong-point, entailing major structural changes to the aircraft. It may also be important to provide for stowage of the cable/conduit and lanyard after separation of

the connector halves, e.g. to prevent damage in a vehicle's slipstream or by dragging on the ground.

The present invention provides a snatch disconnection lanyard assembly comprising a tensioner which may be set to allow paying out of the lanyard or set to pull in the lanyard and when set to pull in, will resist paying out of the lanyard, thereby providing a tensile force for snatch disconnection. To allow the lanyard and an associated connector half to be coupled to a co-operating connector half in a variety of different possible positions, the tensioner is set to allow paying out the lanyard. Preferably when so set, pulling in of the cable by the tensioner is resisted, maintaining slack in the lanyard for ready mating of the connector halves. Once the connection has been made up, the tensioner can be set to pull in, whereupon the slack in the lanyard is taken up and the lanyard is maintained under slight tension. This tension is however designed to be at a level insufficient to separate the connector halves. Then when the tensioner, lanyard and its associated connector half are moved bodily away from the other connector half, paying out of the lanyard is resisted and tension in the lanyard increases to the point where the connector halves are pulled apart.

Where for example the connector halves are respectively attached to a vehicle and its load, because the lanyard is maintained under tension, inertial movements of the load relative to the vehicle or aerodynamic forces acting on the load could cause premature disengagement of the connector. To help prevent this, in accordance with a second independent aspect of the invention, a resilient link is connected to the lanyard, opposed parts of the link each carrying an abutment, the respective abutments being brought into contact with each other when the link has been deformed by a predetermined amount, thereby increasing the stiffness of the link and allowing transmission of snatch disconnection forces. The link allows limited relative movement of the vehicle and its load prior to engagement of the abutments.

Preferred features of the invention are in the dependent claims and also in the following illustrative description, made with reference to the drawings in which:-

Claims:-

1. A snatch disconnection lanyard assembly comprising a tensioner which may be set to allow paying out of the lanyard or set to pull in the lanyard and when set to pull in, will resist paying out of the lanyard, thereby providing a tensile force for snatch disconnection.

2. A lanyard assembly as defined in claim1 wherein when the tensioner is set to allow paying out the lanyard, pulling in of the lanyard by the tensioner is resisted.

3. A lanyard assembly as defined in claim 1 or 2 including a tensioning cable attached to or comprising the lanyard.

4. A lanyard assembly according to claim 3 wherein in use the tensioning cable is wound up onto and unwound from a reel which is spring biassed to wind up the cable.

5. A lanyard assembly according to claim 4 comprising a mounting bracket, a housing for the reel and a flexible conduit extending between the bracket and the housing and through which the tensioning cable runs.

6. A lanyard assembly according to claim 4 or 5 comprising a ratchet mechanism which can be set to resist rotation of the reel in the unwinding direction, thereby resisting paying out of the lanyard, but additionally and alternatively can be reset to resist rotation of the reel in the winding up direction, thereby allowing paying out of the lanyard and resisting pulling in of the lanyard whilst a snatch connection is made up.

7. A lanyard assembly according to claim 6 which is biassed towards the set condition and is moved to the reset condition by rotation of a key inserted into the assembly, counter-rotation of the inserted key being resisted by a further ratchet mechanism.

8. A lanyard assembly according to any preceding claim, comprising a brake operable to resist paying out of the lanyard at above a predetermined speed.

9. A snatch disconnection lanyard assembly comprising a resilient link connected to the lanyard, opposed parts of the link each carrying an abutment, the respective abutments being brought into contact with each other when the link has been deformed by a predetermined amount.

10. A lanyard assembly as defined in claim 9 wherein the abutments, when in contact, transmit tensile loads applied to the connector opposed parts.

11. A lanyard assembly according to claim 9 or 10 wherein the lanyard has a plurality of ends attached to a connector half at spaced circumferential locations, the link comprising a spreader bar connected between a tensioning cable and the lanyard.

12. A lanyard assembly according to any of claims 1-8 and claim 9, 10 or 11.

13. A snatch disconnection lanyard assembly substantially as described with reference to or as shown in the drawings.

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

PHILLIPS & LEIGH
5 Pemberton Row
London EC4A 3BA
GRANDE BRETAGNE

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	06.04.2001
Applicant's or agent's file reference: FP-08-1019	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/00141	11/01/2000	11/01/1999

Applicant: MBM TECHNOLOGY LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Berger, K Tel.+49 89 2399-2576

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
FP-08-1019		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/00141	11/01/2000	11/01/1999
International Patent Classification (IPC) or national classification and IPC H01R13/633		
Applicant MBM TECHNOLOGY LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 4 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
01/08/2000	06.04.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Augustin, W Telephone No. +49 89 2399 2629

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00141

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

3-6	as originally filed			
1,1A	filed with the demand			
2	as received on	24/11/2000	with letter of	21/11/2000

Claims, No.:

1-6	filed with the demand			
7-11	as received on	24/11/2000	with letter of	21/11/2000

Drawings, sheets:

1/8-8/8	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   - ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
   - ☐ the language of publication of the international application (under Rule 48.3(b)).
   - ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   - ☐ contained in the international application in written form.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority in written form.
   - ☐ furnished subsequently to this Authority in computer readable form.
   - ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
   - ☐ The statement that the information recorded in computer readable form is identical to the written sequence

listing has been furnished.

4. The amendments have resulted in the cancellation of:

☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-11
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-11
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-11
	No:	Claims	

2. Citations and explanations
see separate sheet

Re Item V

Prior art does not disclose nor suggest a snatch disconnection lanyard assembly according to claim 1 comprising a tensioner which may be set to allow paying out of the lanyard or set to pull in the lanyard and when set to pull in, will resist paying out.

Snatch Disconnection Lanyard

This invention relates to snatch connectors providing connection/disconnection of electrical or fluid circuits extending between two separable bodies. For example a snatch connector may be employed to connect a refrigeration unit or charging circuit on a road vehicle to a fixed (stationary) power supply, ensuring safe disconnection of the electrical power if the vehicle is inadvertently driven away without first manually disconnecting the circuit. Other applications for snatch connectors include:-

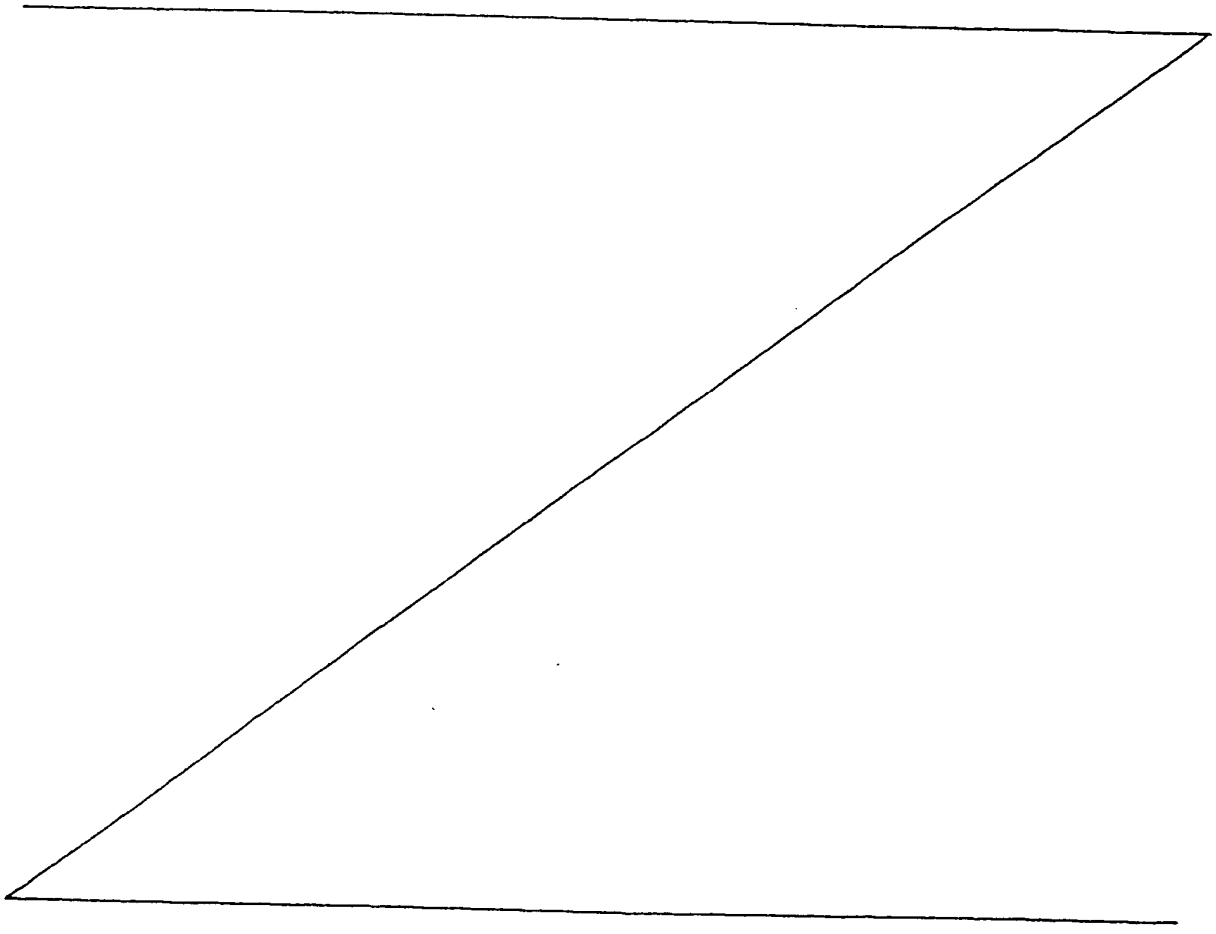
1) connecting ship to shore service lines
2) emergency disconnect packages, connectors and interfaces for ROV (remote operated vehicle) manipulation, used in subsea oil and gas production
3) electrical connections for loads dropped or ejected from aircraft or other moving vehicles.

It is necessary for these connectors to be positively and safely separated to avoid damage to the electrical/fluid circuit and its anchoring points on the separated bodies. This function is normally achieved by firmly securing a first half of the connector to a first one of the bodies and fitting the second half of the connector at the end of a flexible cable or conduit leading to the second body. A lanyard loop is then secured between a fixed strong-point on the second body and the connector second half, so that as the bodies separate, the lanyard is tensioned and releases a spring loaded coupling sleeve on the connector, thereby allowing the two halves to separate. The length of the lanyard loop is shorter than the cable or conduit, which is therefore not subjected to excessive strain as the connector halves are pulled apart.

A similar arrangement is disclosed in US-A-4134634 (Bauer et al), which concerns a tow cable connector for helicopters, in which a fixed lanyard is used. The tow cable is paid out from a winch. When winch torque is overcome, the cable extends and the lanyard releases the tow connector.

In DE-U-9406232.3 (Erich Jaeger) a snatch connector is shown, having a connector latch linked to a coiled part of a connecting cable, using a fixed length lanyard. Stretching of the coiled part pulls the lanyard taut and releases the connector latch.

In some applications, for example where the first body is a variable load releasable from an aircraft, the second connector half may have to co-operate with a variety of different first connector halves, in various different connected positions, for different loads. In such cases it can be difficult to fit the lanyard to ensure proper disconnection whatever the load. Depending upon the type of load it may prove necessary to change the length of the lanyard and the location of the strong-point, entailing major structural changes to the aircraft. It may also be important to provide for stowage of the cable/conduit and lanyard after separation of the connector halves, e.g. to prevent damage in a vehicle's slipstream or by dragging on the ground.



The present invention provides a snatch disconnection lanyard assembly comprising a tensioner characterised in that the tensioner may be set to allow paying out of the lanyard or set to pull in the lanyard and when set to pull in, will resist paying out of the lanyard, thereby providing a tensile force for snatch disconnection. To allow the lanyard and an associated connector half to be coupled to a co-operating connector half in a variety of different possible positions, the tensioner is set to allow paying out the lanyard. Preferably when so set, pulling in of the cable by the tensioner is resisted, maintaining slack in the lanyard for ready mating of the connector halves. Once the connection has been made up, the tensioner can be set to pull in, whereupon the slack in the lanyard is taken up and the lanyard is maintained under slight tension. This tension is however designed to be at a level insufficient to separate the connector halves. Then when the tensioner, lanyard and its associated connector half are moved bodily away from the other connector half, paying out of the lanyard is resisted and tension in the lanyard increases to the point where the connector halves are pulled apart.

Where for example the connector halves are respectively attached to a vehicle and its load, because the lanyard is maintained under tension, inertial movements of the load relative to the vehicle or aerodynamic forces acting on the load could cause premature disengagement of the connector. To help prevent this, a resilient link is connected to the lanyard, opposed parts of the link each carrying abutment faces, the respective abutment faces on either side being brought into contact with each other when the link has been deformed by a predetermined amount, thereby increasing the stiffness of the link and allowing transmission of snatch disconnection forces. The link allows limited relative movement of the vehicle and its load prior to engagement of the abutments.

Preferred features of the invention are in the dependent claims and also in the following illustrative description, made with reference to the drawings in which:-

Claims:-

1. A snatch disconnection lanyard assembly (2,4,6,10,44,52) comprising a tensioner (2), characterised in that the tensioner (2) may be set to allow paying out of the lanyard (4,6,10) or set to pull in the lanyard (4,6,10) and when set to pull in, will resist paying out of the lanyard (4,6,10), thereby providing a tensile force for snatch disconnection.

2. A lanyard assembly (2,4,6,10,44,52) as defined in claim 1 characterised in that, when the tensioner (2) is set to allow paying out the lanyard (4,6,10), pulling in of the lanyard (4,6,10) by the tensioner (2) is resisted.

3. A lanyard assembly (2,4,6,10,44,52) as defined in claim 1 or 2 characterised in that it comprises a tensioning cable (6) attached to or comprising the lanyard (4,6,10).

4. A lanyard assembly (2,4,6,10,44,52) according to claim 3 characterised in that, in use, the tensioning cable (6) is wound up onto and unwound from a reel (8) which is spring biassed to wind up the cable (6).

5. A lanyard assembly (2,4,6,10,44,52) according to claim 4 characterised in that it comprises a mounting bracket (44), a housing (2) for the reel (8) and a flexible conduit (52) extending between the bracket (44) and the housing (2) and through which the tensioning cable (6) runs.

6. A lanyard assembly (2,4,6,10,44,52) according to claim 4 or 5 characterised in that it comprises a ratchet mechanism (12, 16) which can be set to resist rotation of the reel (8) in the unwinding direction, thereby resisting paying out of the lanyard (4,6,10), but additionally and alternatively can be reset to resist rotation of the reel (8) in the winding up direction, thereby allowing paying out of the lanyard (4,6,10) and resisting pulling in of the lanyard (4,6,10) whilst a snatch connection (7,9) is made up.

7. A lanyard assembly (2,4,6,10,44,52) according to claim 6 characterised in that it is biassed towards the set condition and is moved to the reset condition by rotation of a key (20) inserted into the assembly, counter-rotation of the inserted key (20) being resisted by a further ratchet mechanism (34,36,37).

8. A lanyard assembly (2,4,6,10,44,52) according to any preceding claim, characterised in that it comprises a brake (48,54,55) operable to resist paying out of the lanyard (4,6,10) at above a predetermined speed.

9. A snatch disconnection lanyard assembly (2,4,6,10,44,52) according to any preceding claim characterised by a resilient link (4) connected to the lanyard (6,10), opposed parts of the link (4) each carrying abutment faces (40), the respective abutment faces (40) on either side being brought into contact with each other when the link (4) has been deformed by a predetermined amount.

10. A lanyard assembly (2,4,6,10,44,52) as defined in claim 9 characterised in that the abutments (40), when in contact, transmit tensile loads applied to the connector opposed parts (7,9).

11. A lanyard assembly (2,4,6,10,44,52) according to claim 9 or 10 characterised in that the lanyard has a plurality of ends (10) attached to a connector half (7) at spaced circumferential locations, the link (4) comprising a spreader bar connected between a tensioning cable (6) and the lanyard.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
FP-08-1019		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/GB 00/00141	11/01/2000	11/01/1999
Applicant		
MBM TECHNOLOGY LIMITED et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

   a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

   b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

   [ ] contained in the international application in written form.

   [ ] filed together with the international application in computer readable form.

   [ ] furnished subsequently to this Authority in written form.

   [ ] furnished subsequently to this Authority in computer readble form.

   [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

   [X] the text is approved as submitted by the applicant.

   [ ] the text has been established, according to Rule 38.2(b). by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 1

   [X] as suggested by the applicant.

   [ ] because the applicant failed to suggest a figure.

   [ ] because this figure better characterizes the invention.

   [ ] None of the figures.

INTERNATIONAL SEARCH REPORT

[redacted] International Application No
[redacted]/GB 00/00141

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01R13/633

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 134 634 A (BAUR ROBERT ET AL) 16 January 1979 (1979-01-16) column 2, line 41 -column 3, line 2; figures 1,2	1-5,9-11
A	EP 0 526 294 A (INST FRANCAIS DU PETROL) 3 February 1993 (1993-02-03) column 5, line 3 - line 32; figure 5	1,2,4,5, 9-11
A	DE 94 06 232 U (ERICH JAEGER GMBH & KG) 7 July 1994 (1994-07-07) page 4, line 15 -page 6, line 10 figures 1,2	1-3,9-11

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search	Date of mailing of the international search report
23 February 2000	02/03/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Stirn, J-P

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
/GB 00/00141

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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EP 0526294 A	03-02-1993	FR 2679958 A	05-02-1993
		CA 2075076 A	03-02-1993
		NO 923035 A	03-02-1993
		US 5353872 A	11-10-1994
DE 9406232 U	07-07-1994	NONE	